Solution Package for Node.js User's Guide

Version 3.3

RTView®

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Preface

Welcome to the Solution Package for Node.js documentation.

Read this preface for an overview of the information provided in this guide and the documentation conventions used throughout, additional reading, and contact information. This preface includes the following sections:

- "About This Guide" on page 1
- "Additional Resources" on page 1
- "Contacting SL" on page 2

About This Guide

The *Solution Package for Node.js User's Guide* describes how to install, configure, and use the Monitor.

Document Conventions

This guide uses the following standard set of typographical conventions.

Convention	Meaning
italics	Within text, new terms and emphasized words appear in italic typeface.
boldface	Within text, directory paths, file names, commands and GUI controls appear in bold typeface.

Courier	Code examples appear in Courier font:
	`amnesiac > enable`
	`amnesiac # configure terminal`

< >	Values that you specify appear in angle brackets: **interface <ipaddress>**

Additional Resources

This section describes resources that supplement the information in this guide. It includes the following information:

- "Release Notes" on page 2
- "Documentation and Support Knowledge Base" on page 2

Release Notes

The Release Notes, which supplement the information in this user guide, are available on the SL Technical Support site at http://www.sl.com/support/documentation/.

Documentation and Support Knowledge Base

For a complete list and the most current version of SL documentation, visit the SL Support website located at http://www.sl.com/support/documentation/. The SL Knowledge Base is a database of known issues, how-to documents, system requirements, and common error messages. You can browse titles or search for keywords and strings. To access the SL Knowledge Base, log in to the SL Support site located at http://www.sl.com/support/.

Contacting SL

This section describes how to contact departments within SL.

Internet

You can learn about SL products at http://www.sl.com.

Technical Support

If you have problems installing, using, or replacing SL products, contact SL Support or your channel partner who provides support. To contact SL Support, open a trouble ticket by calling 415 927 8400 in the United States and Canada or +1 415 927 8400 outside the United States.

You can also go to http://www.sl.com/support/.

CHAPTER 1 Introduction to the Monitor

This section contains the following:

- "Overview" on page 3
- "System Requirements" on page 4

Overview

The Solution Package for Node.js is an easy to configure and use monitoring system that gives you extensive visibility into the health and performance of your Node.js node instances, node requests, and node processes.

The Monitor enables Node.js users to continually assess and analyze the health and performance of their infrastructure, gain early warning of issues with historical context, and effectively plan for capacity of their messaging system. It does so by aggregating and analyzing key performance metrics across all instances, requests, and processes, and presents the results, in real time, through meaningful dashboards as data is collected.

Users also benefit from predefined dashboards and alerts that pin-point critical areas to monitor in most environments, and allow for customization of thresholds to let users fine-tune when alert events should be activated.

The Monitor also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high-transaction environments.

Solution Package

The Node.js Monitor can be installed as a Solution Package within the RTView Enterprise Monitor® product. RTView Enterprise Monitor is an end-to-end monitoring platform that allows application support teams to understand how infrastructure, middleware, and application performance data affect the availability and health of the entire application. Used as a solution package within RTView Enterprise Monitor, the Node.js metrics and health state are but one source of information that determines the entire health state of the application.

Get Started

Go to "Quick Start - Solution Package" on page 5 for details on how to get up and running with the Solution Package for Node.js. RTView Enterprise Monitor® 3.3 must be installed on your system.

For more information about RTView Enterprise Monitor®, see the *RTView Enterprise Monitor® User's Guide*, available at http://www.sl.com/support/documentation/.

System Requirements

Please refer to the **README_sysreq.txt** from your product installation. A copy of this file is also available on the product download page.

CHAPTER 2 Quick Start - Solution Package

This section describes how to install, configure, and start the Solution Package for Node.js. See **README_sysreq.txt** for the full system requirements for RTView®.

The Solution Package for Node.js requires RTView Enterprise Monitor 3.3.

For Linux, these instructions require a Bourne-compatible shell.

These instructions assume you are familiar with the start/stop scripts for RTView Enterprise Monitor. For details, see the *RTView Enterprise Monitor® User's Guide* available at http://www.sl.com/support/documentation/.

As a general rule, SL recommends creating a top-level directory named **RTView** and installing RTView Enterprise Monitor under this directory. The following sections assume that you have created an **RTView** directory and installed RTView Enterprise Monitor under the **RTView** directory, thus resulting in the **RTView/rtvapm** directory structure.

This document also assumes you created a project directory, **rtvapm_projects**, when you installed RTView Enterprise Monitor. All examples (of configurations, property settings, command execution, and so forth) refer to the project directory. The Solution Package for Node.js configuration is located in the **rtvapm_projects/emsample/servers/miscmon**.

This section includes:

- "Install & Setup," next
- "Setup Your Data Connection" on page 7
- "Start the Monitor" on page 8
- "Stop the Monitor" on page 9
- "Troubleshooting" on page 10

Install & Setup

Prerequisite: RTView Enterprise Monitor 3.3 must be installed on your system.

1. Download the **rtvapm_nodemon_<version>.zip** archive to your local Windows/UNIX/Linux server.

2. Extract the files:

   Windows:

   Type unzip **rtvapm_nodemon _<version>.zip** and save the files to the **C:\RTView** directory.

   UNIX/Linux:

   Type **unzip -a rtvapm_nodemon _<version>.zip** and save the files to the **/opt/RTView** directory.

3. Verify that the **nodemon** directory was created under **rtvapm** and extracted correctly.

4. Verify you do not have an extra **rtvapm** directory containing **nodemon**. If you do, move these directories under the first **rtvapm** directory and delete the nested **rtvapm**.

5. Set **JAVA_HOME** to the location of your Java installation and include the **bin** directory under **JAVA_HOME** in the path.

   Important: This environment variable must be defined in UNIX/Linux systems for Tomcat to start successfully.

Installing the Agent

Nodemon requires adding the rtview-nodemon module into your Node.js server application.

1. Copy the **C:/RTView/rtvapm/nodemon/agents/rtview-nodemon-<VERSION>.zip** file into your server application's **node_modules** folder and unzip the files. The **rtview-nodemon** sub-directory is automatically created in your **node_modules** directory (**node_modules/rtview-nodemon**).

2. In a command window, **cd** to the **node_modules/rtview-nodemon** directory and type **npm install** to install the required rtview-nodemon modules.

3. In your Node.js server application, you need to add a reference to the rtview-nodemon module. Below are two examples of how to add a reference:

   Example 1:

   require('rtview-nodemon').start({ 'app' : app, 'id' : 'your_serverID', 'cluster' : cluster });

   Example 2:

   var rtv = require('rtview-nodemon');

   rtv.start({ 'app' : app, 'host' : 'id' : 'your_server_display_name', 'cluster' : cluster });

   Required Argument Fields:

   '**app**' : The reference to your express application object. This is only required for the master node in a clustered node application. For example:

   var app = express();

   '**id**' : The label used by nodemon to identify your server instance.

   Optional Argument Fields:

   '**cluster**' : If you are running a clustered Node.js application, this is the reference to the cluster object. Omit this option if non-clustered. For example:

   var cluster = require('cluster');

   '**host**' : The host name or IP address of your RTView EM nodemon installation if other than 'localhost'

   '**port**' : **3275** The port number of your RTView EM nodemon installation. This must match the "**rtvhttpoption port**" entry found in **RTVHTTPOPTIONS.ini**, which is currently 3275.

Defining User-Defined Host Names

The Node.js Monitor uses the application's host name that is pulled from the operating system or container in which it is running to populate the **Host** drop down lists/columns that appear throughout Node.js Monitor. In some cases, there could be more than one application running on the same operating system or within the same container, which means that the same host name might be used for multiple applications. To better determine the identity of the specific applications, you can assign a user-defined host name for the application using one of the following two methods:

- Set a user-defined host name by adding **-rtvhttp_host** in the command line when starting the application. For example: **-rtvhttp_host=<YourHostName>**
- Define the **RTVHTTP_HOST** environment variable specifying the host name. For example: **RTVHTTP_HOST=<YourHostName>**

When both are specified, the command line argument takes precedence over the environment variable. Once set, the user-defined host name will display in the **Host** drop down lists/ columns throughout Node.js Monitor, thus allowing you to select the specific application for which you want to view data.

Proceed to "Setup Your Data Connection," next.

Setup Your Data Connection

The default port used for data collection is defined in the **sample.properties** file. To modify the default, perform the following:

1. Open the **RTView/rtvapm_projects/emsample/servers/miscmon/sample.properties** file and find the following section:

```
#################################
# NODEMON sample properties
#################################


#########################
# RTVHTTP DATA COLLECTOR PROPERTIES

# Configure your data connections here ...
# The examples shown below should be tailored to your environment.

# RTVHTTP OPTIONS SETTINGS
#
# Configure the listening port for the rtvhttp data adapter
#
# If multiple solution packs use the rtvhttp data adapter and are included the
same data server (e.g. MISCMON)
# then be aware this property may occur multiple times in the same properties
file,
# with the last occurrence to set the value taking precedence.

collector.sl.rtview.rtvhttp.port=3275
```

2. Edit the following line and specify the Node.js rtvhttp data adapter port to which you want to connect (to enable the Monitor to collect data):

```
collector.sl.rtview.rtvhttp.port=3275
```

Proceed to “Start the Monitor,” next

Start the Monitor

Use the configuration defined in the **rtvservers.dat** file, which is located in the **RTView/rtvapm_projects/emsample/servers** directory.

1. Initialize a command line window by executing the **rtvapm_init** script. For example:

   Windows

   Go to your RTView Enterprise Monitor installation directory and type:

   rtvapm_init

   UNIX

   Go to your Enterprise Monitor installation directory and type:

   ../rtvapm_init.sh

2. Initialize the user project directory by executing the rtvapm_user_init script. For example:

   Windows

   Change directory (**cd**) to **RTView\rtvapm_projects\emsample** and type:

   rtvapm_user_init

   UNIX

   Change directory (**cd**) to **RTView/rtvapm_projects/emsample** and type:

   ../rtvapm_user_init.sh

3. Change directory (**cd**) to **rtvapm_projects/emsample/servers**.

4. Execute **start_rtv.sh central** (**start_rtv central** for Windows) to start the RTView Enterprise Monitor main processes.

5. Execute **start_rtv.sh rtvmgr** (**start_rtv rtvmgr** for Windows) to start the RTView Manager.

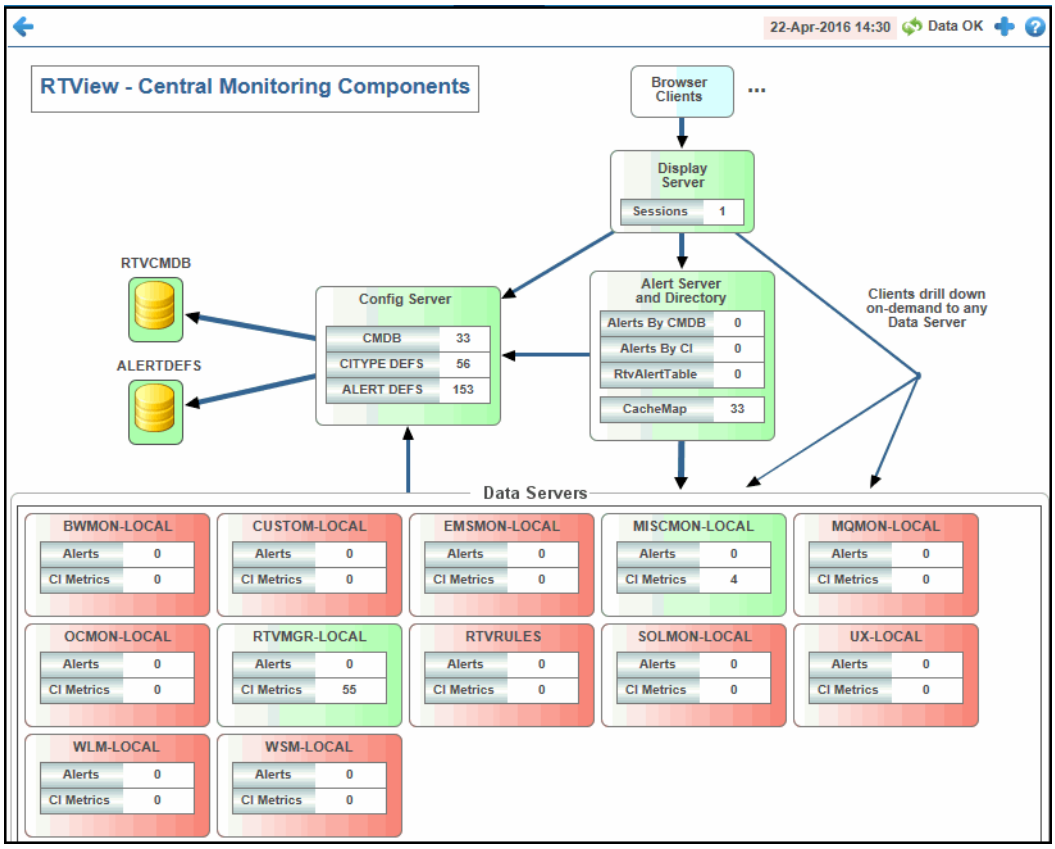
6. Execute **start_rtv.sh miscmon –properties:sample** (or **start_rtv miscmon –properties:sample** for Windows) to start all components of the Solution Package for Node.js.

   Note: Make sure that you have deployed the **emsample.war** file to your application server prior to attempting the next step. See the “Configure Central Servers” section in the RTView Enterprise Monitor document for more information.

7. Open a browser and go to your RTView Enterprise Monitor deployment.

8. Verify that the Data Server is collecting data by navigating to the **Admin** tab and clicking **Architecture->System Overview** in the navigation tree. The **RTView - Central Monitoring Components** display should open and the Data Server, named **MISCMON-**

LOCAL (by default), should be green and the **CI Metrics** value should be greater than zero (**0**). For example:



You have completed the Quick Start.

For information about configuring RTView Enterprise Monitor and Solution Packages for your production environment, see the *RTView Enterprise Monitor® User's Guide* available at http://www.sl.com/support/documentation/.

Stop the Monitor

To stop the Solution Package for Node.js (in RTView Enterprise Monitor):

1. Change directory (**cd**) to **RTView/rtvapm_projects/emsample/servers**.
2. Execute **stop_rtv.sh miscmon** (or **stop_rtv miscmon** for Windows) to stop all components of the Solution Package for Node.js.

Troubleshooting

This section includes:

- "Log Files," next
- "JAVA_HOME" on page 10
- "Permissions" on page 10
- "Network/DNS" on page 10
- "Verify Data Received from Data Server" on page 10
- "Verify Port Assignments" on page 11

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **rtvapm_projects/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **rtvapm_projects/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MISCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Node." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the Viewer, display server, or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

CHAPTER 3 Solution Package Production Configuration

For information about configuring RTView Enterprise Monitor and Solution Packages for your production environment, see the *RTView Enterprise Monitor® User's Guide* available at http://www.sl.com/support/documentation/.

CHAPTER 4 Deployment

This section describes how to deploy the Monitor components. This section includes:

- "Overview" on page 15
- "Desktop Application Deployment" on page 15
- "Web Application Deployment" on page 17
- "RTView Server Components as Windows Services" on page 20
- "Troubleshooting" on page 21

Overview

The Monitor can be deployed as a stand-alone desktop client or as a web application that runs in a browser. Evaluation environments can use the provided HSQLDB database. Production environments require a supported JDBC- or ODBC-enabled relational database to store historical information. Supported databases are MySql, SyBase, Oracle, SqlServer and DB2.

The central processes are typically deployed on the same host. However, these processes can optionally be configured on separate hosts. Doing so can increase performance in deployments that need to support many end users or systems with large servers.

- "Desktop Application Deployment" on page 15

  If you choose the desktop option, the Monitor desktop application needs to be installed at each client.

- "Web Application Deployment" on page 17

  If you choose the browser option, clients need only a browser and Adobe Flash installed.

Desktop Application Deployment

This section describes how to deploy the Monitor as a desktop application. You deploy the Monitor using the **start_rtv** script (and stop the Monitor using the **stop_rtv** script). In a desktop deployment the stand-alone desktop client connects directly to an RTView Data Server which gathers performance metrics. For desktop deployments, the following processes are started: the RTView Data Server, Historian, and Viewer desktop application, as well as the database.

NOTE: The RTView Data Server, Historian and Display Server can be run as Windows Services. For details, see "RTView Server Components as Windows Services" on page 20.

To deploy the Monitor as a desktop application:

- "Windows" on page 16

- "UNIX/Linux" on page 16

Windows

1. Initialize a command window. Go to your Monitor installation directory and type:
   rtvapm_init
2. Change directory (**cd**) to the **RTView\rtvapm_projects\emsample** directory and type:
   rtvapm_user_init
3. Change directory (**cd**) to **RTView\rtvapm_projects\emsample\servers** and type:
   start_rtv central
   start_rtv rtvmgr
   start_rtv nodemon
4. Start the Viewer by typing:
   start_rtv viewer
5. Login. The default user name and password are:
   User Name: **demo**
   Password: **demo**
   The RTView Enterprise Monitor display opens.

UNIX/Linux

1. Initialize a terminal window. The script used to initialize a terminal window depends on whether you are in csh or rsh (e.g. Linux, Mac OS X). With a Bourne shell, open a terminal window, go to your Monitor installation directory and type:
   ../rtvapm_init.sh
2. Change directory (**cd**) to the **RTView/rtvapm_projects/emsample** directory and type:
   ../rtvapm_user_init.sh
3. Change directory (**cd**) to **RTView/rtvapm_projects/emsample/servers** and type:
   start_rtv.sh central
   start_rtv.sh rtvmgr
   start_rtv.sh nodemon
4. Start the Viewer by typing:
   start_rtv.sh viewer
5. Login. The default user name and password are:
   User Name: **demo**
   Password: **demo**

The RTView Enterprise Monitor display opens.

Web Application Deployment

This section describes how to deploy the Monitor as a web application. You deploy the Monitor using the **start_rtv** script (and stop the Monitor using the **stop_rtv** script). For web application deployments the following processes are started: the RTView Data Server, Historian and Display Server, as well as the database and an application server.

NOTE: The RTView Data Server, Historian and Display Server can be run as Windows Services. For details, see "RTView Server Components as Windows Services" on page 20.

To deploy the Monitor as a web application:

- "Windows" on page 17
- "UNIX/Linux" on page 18

To view a list of iPad Safari limitations:

- "iPad Safari Limitations" on page 18

Windows

1. Copy the **RTView\rtvapm\projects\webapps\emsample.war** file and deploy it to your Application Server.
2. Start your Application Server.
3. Initialize a command window. Go to your Monitor installation directory and type:

   rtvapm_init
4. Change directory (**cd**) to **RTView\rtvapm_projects\emsample** and type:

   rtvapm_user_init
5. Change directory (**cd**) to **RTView\rtvapm_projects\emsample\servers** and type:

   start_rtv central

   start_rtv rtvmgr

   start_rtv nodemon
6. Open a Web browser and type the following URL to open the Monitor:

   http://host:port/emsample

   Where **host** is the IP or host name where your Application Server is running and **port** is the port used by your Application Server. The login display opens in the Web browser.

   Login. The default user name and password are:

   User Name: **demo**

   Password: **demo**

   The main monitor display opens.

UNIX/Linux

1. Copy the **RTView/rtvapm/projects/webapps/emsample.war** file and deploy it to your Application Server.

2. Start your Application Server.

3. Initialize a terminal window. The script used to initialize a terminal window depends on whether you are in csh or rsh (e.g. Linux, Mac OS X). With a Bourne shell, open a terminal window, go to your Monitor installation directory and type:

   ../rtvapm_init.sh

4. Change directory (**cd**) to **RTView/rtvapm_projects/emsample** and type:

   ../rtvapm_user_init.sh

5. Change directory (**cd**) to **RTView/rtvapm_projects/emsample/servers** and type:

   start_rtv.sh central

   start_rtv.sh rtvmgr

   start_rtv.sh nodemon

6. Open a Web browser and type the following URL to open the Monitor:

   http://host:port/emsample

   Where **host** is the IP or host name where your Application Server is running and **port** is the port used by your Application Server. The login display opens in the Web browser.

   Login. The default user name and password are:

   User Name: **demo**

   Password: **demo**

   The main Monitor display opens.

iPad Safari Limitations

- In the iPad settings for Safari, **JavaScript** must be **ON** and **Block Pop-ups** must be **OFF**. As of this writing, the Thin Client has been tested only on iOS 4.3.5 in Safari.
- The iPad does not support Adobe Flash, so the Fx graph objects (obj_fxtrend, obj_fxpie, obj_fxbar) are unavailable. The Thin Client automatically replaces the Fx graph objects with the equivalent non-Fx object (obj_trendgraph02, obj_pie, obj_bargraph). Note that the replacement objects behave the same as the Fx objects in most cases but not in all. In particular, obj_trendgraph02 does not support the sliding cursor object nor the **legendPosition** property. Custom Fx objects are not supported on the iPad.
- The Thin Client implements scrollbars for table objects and graph objects. However, unlike the scrollbars used on desktop browsers, the scrollbars used on the iPad do not have arrow buttons at each end. This can make it difficult to scroll precisely (for example, row by row) on objects with a large scrolling range.

- At full size, users may find it difficult to touch the intended display object without accidentally touching nearby objects and performing an unwanted drill-down, sort, scroll, and so forth. This is particularly true of table objects that support drill-down and also scrolling, and also in panel layouts that contain the tree navigation control. In those cases, the user may want to zoom the iPad screen before interacting with the Thin Client.
- If the iPad sleeps or auto-locks while a Thin Client display is open in Safari, or if the Safari application is minimized by clicking on the iPad's home button, the display is not updated until the iPad is awakened and Safari is reopened. In some cases it may be necessary to refresh the page from Safari's navigation bar.

Because the iPad uses a touch interface there are differences in the Thin Client appearance and behavior in iOS Safari as compared to the conventional desktop browsers that use a cursor (mouse) interface, such as Firefox and Internet Explorer. These are described below.

- Popup browser windows: An RTView object's drill-down target can be configured to open a display in a new window. In a desktop browser, when the RTView object is clicked the drill-down display is opened in a popup browser window. But in iOS Safari 4.3.5, only one page is visible at a time, so when the RTView object is touched a new page containing the drill-down display opens and fills the screen. The Safari navigation bar can be used to toggle between the currently open pages or close them.
- Mouseover text: When mouseover text and drill-down are both enabled on an RTView object (for example, a bar graph), in iOS Safari the first touch on an element in the object (for example, a bar) displays the mouseover text for that element and the second touch on the same element performs the drill-down.
- Resize Mode and Layout: By default, the Display Server runs with **resizeMode** set to **crop**. In **crop** mode, if a display is larger than the panel that contains it only a portion of the display is visible. In a desktop browser, scrollbars become available to allow the user to scroll to view the entire display. In iOS Safari, scrollbars do not appear but the display can be scrolled by dragging two fingers inside the display. (Dragging one finger scrolls the entire page, not the display).

  If the Display Server is run with **resizeMode** set to **scale** or **layout**, the display is resized to fit into the panel that contains it. If a desktop browser is resized after a display is opened, the display is resized accordingly. On the iPad, the Safari browser can only be resized by reorienting the iPad itself, between portrait mode and landscape mode.

  The panel layout feature is supported in the Thin Client. However, unlike a desktop browser which resizes to match the layout size, the size of Safari is fixed. So if the Display Server is run with **resizeMode** set to **crop** or **scale** mode, there may be unused space at the edges of the display(s) or, in **crop** mode, the panels and displays may be cropped.

  This means that **layout** mode should be used for best results on the iPad. For layout mode to be most effective, displays should use the **anchor** and **dock** object properties. Please see RTView documentation for more information.
- Scrolling: The Thin Client implements scrollbars for table objects and graph objects. The scrollbars are activated by dragging with one finger.

  If an RTView display is viewed in **crop** mode and is too large to be displayed entirely in Safari, scrollbars do not appear (as they would in a desktop browser) but the display can be scrolled by dragging with two fingers inside the display.

  Scrollbars do not ever appear in a text area control. If the text area contains more text than is visible, use the two finger drag in the text area to scroll the text.

Regardless of the size of a listbox control, it can only display a single item (typically, the selected item). When the listbox is touched, the list of items appear in a popup list. In other words, on iOS Safari the listbox control and the combobox control behave identically.

- Context menu: The Thin Client context menu is opened by a right mouse button click in a desktop browser. It is opened in iOS Safari by touching any location on a display and holding that touch for 2 seconds. The menu appears in the top left corner of the display, regardless of where the display is touched. The items **Export Table to Excel**, **Drill Down**, and **Execute Command** are not included on the context menu in Safari. All other items are available. The **Export Table to HTML** item is enabled if a table object is touched (unless the table object's drillDownTarget is configured to open another display). After an **Export to PDF/HTML** is performed, the exported content opens on another page in Safari. From there, the content can either be opened by another application (for example, the iBooks application opens PDF) and emailed, or it can be copied ands pasted into an email.

RTView Server Components as Windows Services

This section describes how to configure an RTView process (Data Server and Historian) to run as a Windows service.

To Configure the Data Server or Historian to run as a Windows Service

1. Add the following lines to the **sample.properties** file.

```
##########################
# WINDOWS SERVICES
# Install Misc Monitor servers as Windows services
#
installservice.sl.rtview.cmd_line=-install_service
installservice.sl.rtview.cmd_line=-dir:%RTVAPM_STARTUP%
uninstallservice.sl.rtview.cmd_line=-uninstall_service
#
```

NOTE: The environment variable %RTVAPM_STARTUP% is set by a run script to the directory where the script was started.

2. For each Windows service you want to create, add the following line and replace **name** with a name you choose for the service:

   name.sl.rtview.cmd_line=service:name

Note: Each service must have a unique name and the beginning of the property entered must match the name of the service.

For example, if you choose **MiscMonData** as the name for starting a Data Server as a Windows service.

```
##########################
# WINDOWS SERVICES
# Install Misc Monitor servers as Windows services
#
```

```
    installservice.sl.rtview.cmd_line=-install_service
    installservice.sl.rtview.cmd_line=-dir:%RTVAPM_STARTUP%
    uninstallservice.sl.rtview.cmd_line=-uninstall_service
    MiscMonData.sl.rtview.cmd_line=-service:MiscMonData
#
```

To install and run

Execute the following scripts to start the service:

NOTE: These scripts must be run in an initialized command window.

rundata -propfilter:installservice -propfilter:MiscMonData

To uninstall

Execute the following scripts to uninstall the services:

NOTE: These scripts must be run in an initialized command window.

rundata -propfilter:uninstallservice -propfilter:MiscMonData

Troubleshooting

This section includes:

- "Log Files" on page 21
- "Verifying Data Received from Data Server" on page 21
- "Restarting the Data Server" on page 22

Log Files

When the Monitor encounters an error, Monitor components output an error message to the console and/or to the corresponding log files. Log files are located in the **project_directory\logs** directory (for example: **rtvapm_projects\emsample\servers\miscmon\logs**). Look at the following log files on the machine where the components are running:

- **dataserver.log**
- **historian.log**

To enable logging, make sure the directory logs exist in your project directory.

Verifying Data Received from Data Server

Open the **Cache Viewer Display** to verify data is arriving correctly from the Data Server. To access the **Cache Viewer Display**, select the **Admin** tab, choose **Administration** in the navigation tree, then choose **RTView Cache Tables** or the **RTView Cache Overview**. You should see all caches being populated with monitoring data (number of rows > 0). Otherwise, there are problems with the connection to the Data Server.

Restarting the Data Server

If the Viewer, the Display Server or the Historian fails to connect to the Data Server or receives no data, verify the ports are assigned correctly in your properties files and then restart the Data Server.

CHAPTER 5 Using the Monitor

This section describes the Monitor features, graphs, and functionality as well as the Monitor displays. This section includes:

- "Overview" on page 23: Describes the Monitor features and functionality.
- "Node/Master Views" on page 30: The displays in this View present detailed data for all node instances or for a particular node instance.
- "Node Request Views" on page 35: The displays in this View allow you to view data pertaining to requests for a connection and a host, or view trending request data for a particular URL associated with a connection and a host.
- "Process Views" on page 40: The displays in this View allow you to view the current and historical metrics for all node processes in a heatmap or tabular format for one or all hosts, or view the current and historical metrics for a single node process.

Overview

This section describes the main Monitor features, how to read Monitor objects, GUI functionality and navigation. This section includes:

- "Navigation Tree" on page 23: Describes the navigation tree.
- "Heatmaps" on page 24: Describes how to read heatmaps and heatmap functionality.
- "Tables" on page 25: Describes how to read tables and table functionality.
- "Trend Graphs" on page 26: Describes how to read trend graphs and trend graph functionality.
- "Title Bar" on page 27: Describes the top layer of the title bar shared by Monitor displays.
- "Context Menu" on page 28: Describes right-click popup menu in the Monitor.
- "Multiple Windows" on page 28: Describes opening multiple windows in the Monitor.
- "Export Report" on page 29: Describes how to export reports from the Monitor.
- "" on page 29: Describes how to define user-defined host names for your applications.

Navigation Tree

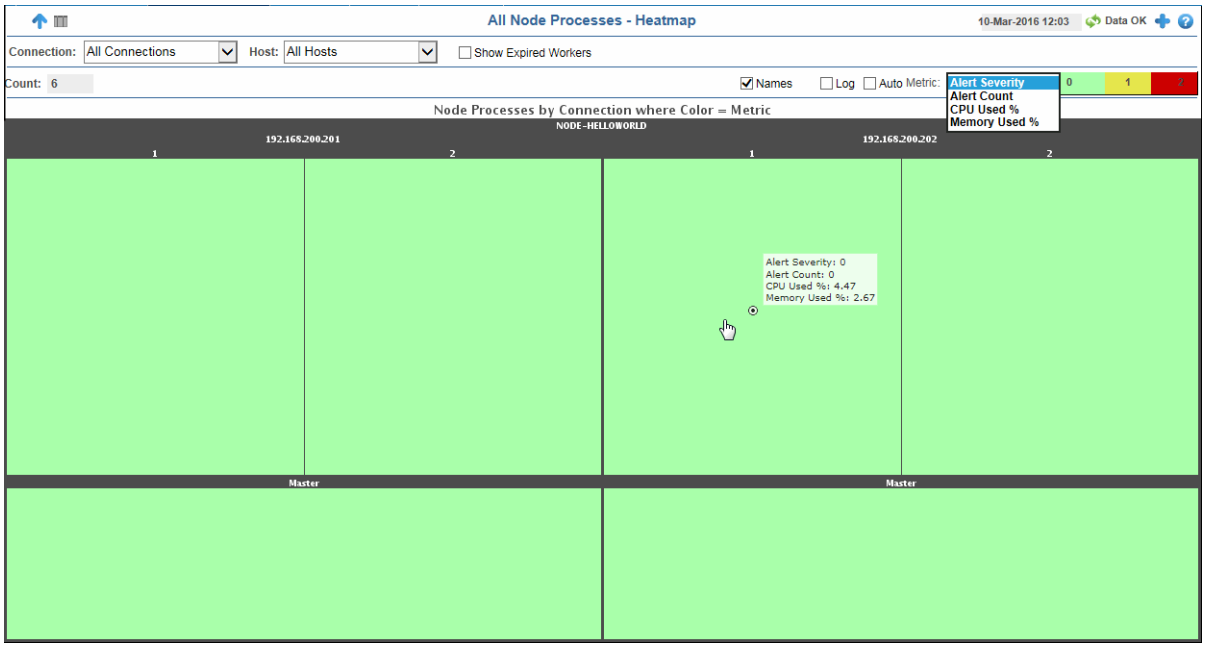
The Monitor navigation tabs are organized by *Views*. Each View features performance data for a type of system resource. Typically, the performance data is shown in a tabular, heatmap, and summary display for each View.

Note: It takes about 60 seconds after the Monitor Data Server is started for data to initially appear in Monitor displays. By default, data is collected every 20 seconds and displays are refreshed every 2 seconds.

Heatmaps

Heatmaps organize your Node.js resources into rectangles and use color to highlight the most critical values in each. Heatmaps enable you to view various metrics in the same heatmap using drop-down menus. Each metric has a color gradient bar that maps relative values to colors. In most heatmaps, the rectangle size represents the number of resources in the rectangle. Heatmaps include drop-down menus by which to filter data. The filtering options vary among heatmaps.

For example, each rectangle in the **All Node Processes Heatmap** represents a node process, where color is representative of the selected **Metric**.



The **Metric** drop-down menu in this heatmap contains options to show **Alert Severity**, **Alert Count**, as well as other metrics. Menu options vary according to the data populating the heatmap. **Alert Severity** is selected and its corresponding color gradient bar is shown. **Alert Severity** is the maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest **Alert Severity**:

Red indicates that one or more resources associated with that application currently has an alert in an alarm state.

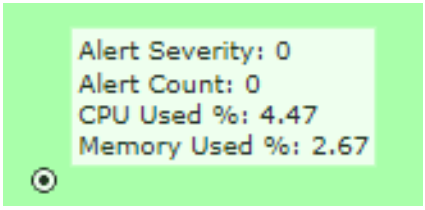
Yellow indicates that one or more resources associated with that application currently have an alert in a warning state.

Green indicates that no resources associated with that application have alerts in a warning or alarm state.

In most heatmaps, you can also drill-down to a *Summary* display containing detailed data for the resource (in this case, you drill-down to detailed data for the selected process in the **Node Process Summary** display). You can also open a new window and then drill-down. The drill-down opens a display that contains relevant and more detailed data.

Mouse-over

The mouse-over functionality provides additional detailed data in a tooltip when you mouse-over a heatmap. The following figure illustrates mouse-over functionality in a heatmap object.

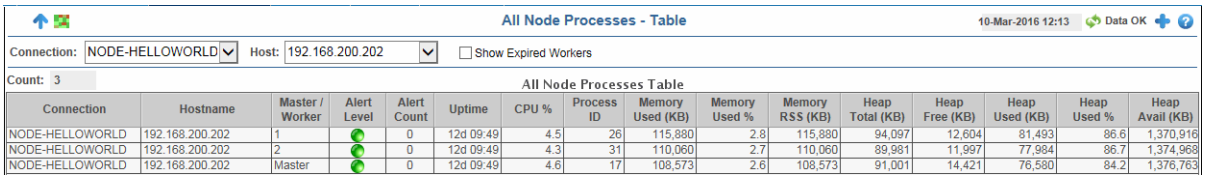


Log Scale

Typically, heat maps provide the **Log Scale** option, which enables visualization on a logarithmic scale. This option should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Tables

Monitor tables contain the same data that is shown in the heatmap in the same View. Tables provide you a text and numeric view of the data shown in that heatmap, and additional data not included the heatmap. For example, the **All Node Processes Table** display (shown below) shows the same data as the **All Node Processes Heatmap** display (shown previously).


All Node Processes - Table

10-Mar-2016 12:13 Data OK

Connection: NODE-HELLOWORLD Host: 192.168.200.202 Show Expired Workers

Count: 3

All Node Processes Table

Connection	Hostname	Master / Worker	Alert Level	Alert Count	Uptime	CPU %	Process ID	Memory Used (KB)	Memory Used %	Memory RSS (KB)	Heap Total (KB)	Heap Free (KB)	Heap Used (KB)	Heap Used %	Heap Avail (KB)
NODE-HELLOWORLD	192.168.200.202	1		0	12d 09:49	4.5	26	115,880	2.8	115,880	94,097	12,604	81,493	86.6	1,370,916
NODE-HELLOWORLD	192.168.200.202	2		0	12d 09:49	4.3	31	110,060	2.7	110,060	89,981	11,997	77,984	86.7	1,374,968
NODE-HELLOWORLD	192.168.200.202	Master		0	12d 09:49	4.6	17	108,573	2.6	108,573	91,001	14,421	76,580	84.2	1,376,763

Table rows also sometimes use color to indicate the current most critical alert state for all resources associated with a given row. For example, the color coding is typically as follows:

Red indicates that one or more resources associated with that node process currently has an alert in an alarm state.

Yellow indicates that one or more resources associated with that node process currently have an alert in a warning state.

Green indicates that no resources associated with that node process currently have an alert in a warning or alarm state.

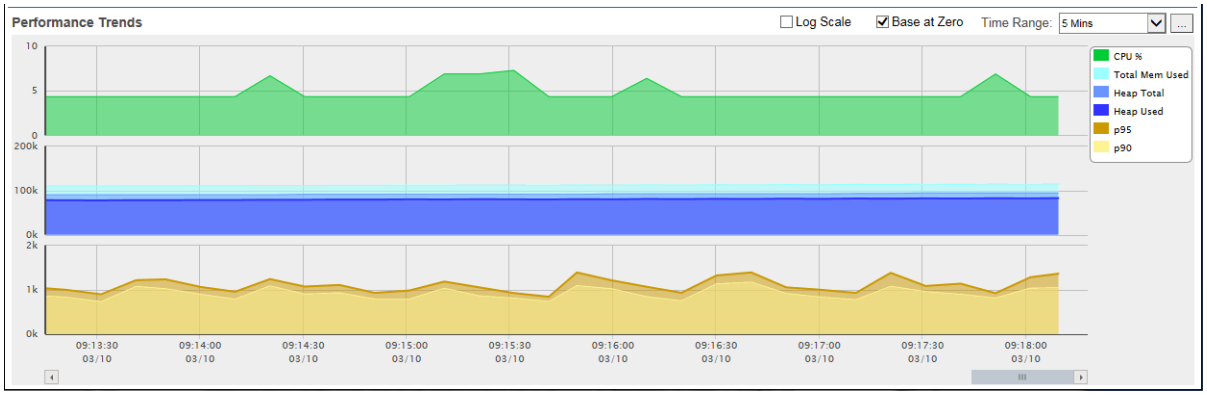
Sorting

The Monitor allows you to sort table rows. Select sort in the column title, then choose **Sort Ascending**, **Sort Descending**, **Columns**, **Filter**, **Lock**/**Unlock** or **Settings**.

Trend Graphs

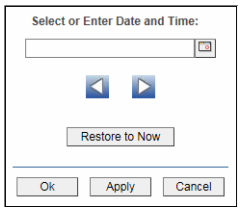
Monitor trend graphs enable you to view and compare performance metrics over time. You can use trend graphs to assess utilization and performance trends.

For example, the following figure illustrates a typical Monitor trend graph.



Time Range

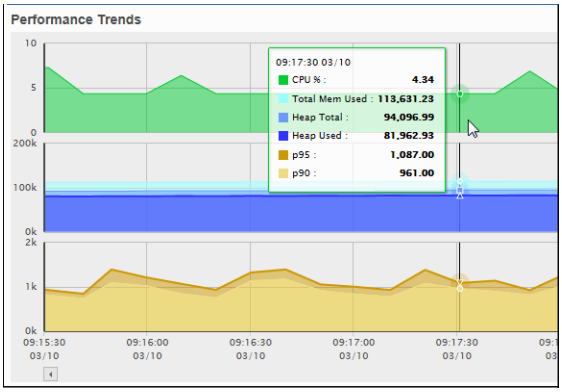
Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. By default, the time range end point is the current time. To enter a specific time range, click the associated ellipsis button ....



To change the time range click the Open Calendar button , choose the date and time, then click **OK**. Or, enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM:ss** (for example, Aug 21, 2011 12:24 PM) and click **Apply**. Use the Navigation Arrows to move forward or backward one time period (the time period selected from the Time Range drop-down menu). Click **Restore to Now** to reset the time range end point to the current time.

Mouse-over

The mouse-over functionality provides additional detailed data in an over imposed pop-up window when you mouse-over trend graphs. The following figure illustrates mouse-over functionality. In this example, when you mouse-over a single dot, or data point, a pop-up window shows data for that data point.

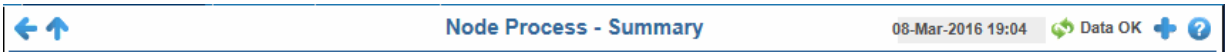


Log Scale

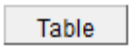
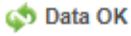
Typically, trend graphs provide the **Log Scale** option. **Log Scale** enables you to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Title Bar

Displays share the same top layer in the title bar, as shown below.



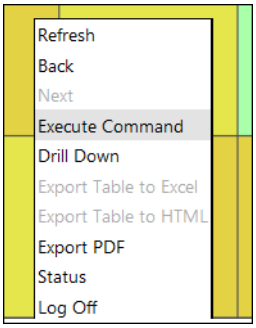
The following table describes the functionality in the display title bar.

	Opens the previous display.
	Opens the display that is up one level.
	Navigates to a display that is most commonly accessed from the current display. The target display differs among displays.
	Opens the Alerts Table display in a new window.
	The current date and time. If the time is incorrect, this might indicate that RTView stopped running. When the date and time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.
	The data connection state. Red indicates the data source is disconnected (for example, if the Data Server is not receiving data, or if the Display Server does not receive data from the Data Server, this will be red). Green indicates the data source is connected. When the date and time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

	Opens an instance of the same display in a new window. Each window operates independently, allowing you to switch views, navigate to other displays in RTView EM, and compare server performance data.
	Opens the online help page for the current display.

Context Menu

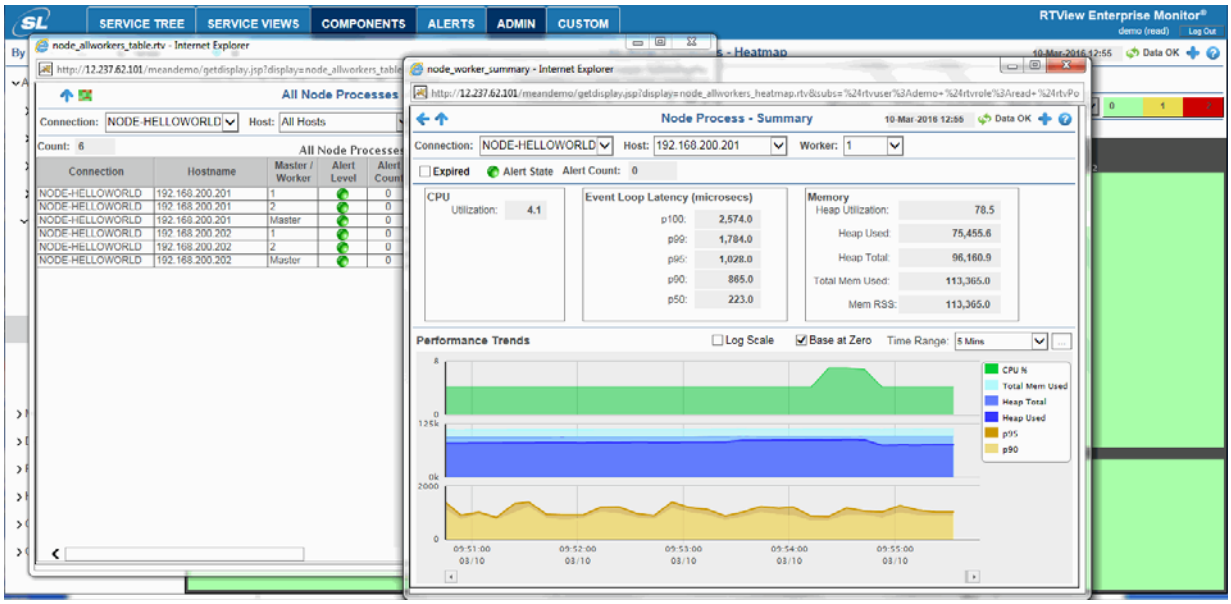
Typically, you can right-click on displays to open a popup menu. By default, options include **Refresh**, **Back**, **Next**, **Execute Command**, **Drill Down**, **Export Table to Excel**, **Export Table to HTML**, **Export PDF**, **Status** and **Log Off**. The following figure illustrates the popup menu in a heatmap.



For details about exporting a PDF report, see “Export Report” on page 29.

Multiple Windows

The following illustrates the use of Open New Window in the RTView Enterprise Monitor.

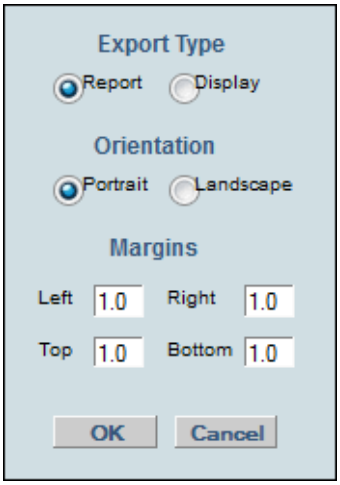


Export Report

You can quickly export reports for displays, or for tables and grid objects in a display, to a PDF file.

To generate a report for a display:

Right-click on the display and select **Export PDF**. The **Export to PDF** dialog opens.

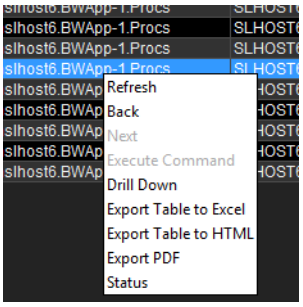


Set the margins and choose the **Export Type**:

- **Report**: Generates an image of the display on the first page, followed by at least one page for each table or object grid in the display. As many pages as are necessary to show all the data in each table or object grid are included in the report. This enables you to view all data in a table or object grid that you otherwise must use a scrollbar to see. If there are no tables or object grids in your display, you only get a image of the display.
- **Display**: Generates an image of the display in PDF format.Choose the page orientation (**Portrait** or **Landscape**), set the page margins and click **OK**. The report opens in a new window.

To generate a report for a table or grid object in a display:

Right-click on the table or grid object and choose **Export PDF**, **Export Table to Excel** or **Export Table to HTML**.



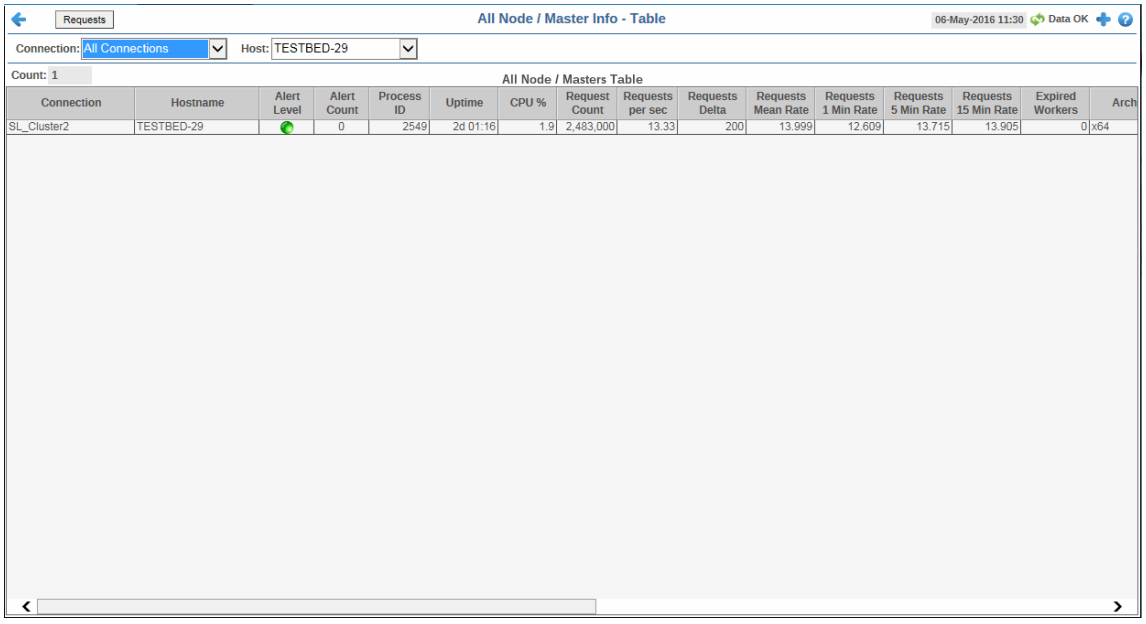
Node / Master Views

These displays provide detailed data for all node instances or for a particular node instance. Displays in this View are:

- “Node Master Table” on page 30: A tabular view of your connected and recently expired node instances and their associated metrics.
- “Node Master Summary” on page 33: Provides a way to view trending data for individual node processes.

Node Master Table

This table provides a view of all your connected (and recently expired) node instances and their associated metric data including host, connection, alert severity, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected node in the “Node Master Summary” display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.
Data OK The data connection state. Red indicates the data source is disconnected (for example, the Data Server is not receiving data, or the Display Server is not receiving data from the Data Server). Green indicates the data source is connected.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this display.

Note: The **Requests** button takes you to "Node Requests Table".

Fields and Data:

Connection	Select the name of the connection containing the node instances for which you want to view data.
Host	Select the name of the host containing the node instances for which you want to view data.
Count	The total number of node instances being monitored based on your search criteria.

Table:
Each row in the table is a different message router.

Connection	The name of the connection.
Host Name	The name of the host.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of current alerts.
Process ID	The process id for the node instance.
Uptime	The amount of time the process has been running.
CPU %	The percentage of CPU used for the process.
Request Count	The total number of requests on the host.
Requests per sec	The average number of requests per second on the host.
Requests Delta	The total number of requests since the last data update.
Requests Mean Rate	The average number of requests for the server since monitoring was started.
Requests 1 Min Rate	The average number of requests for the last minute.

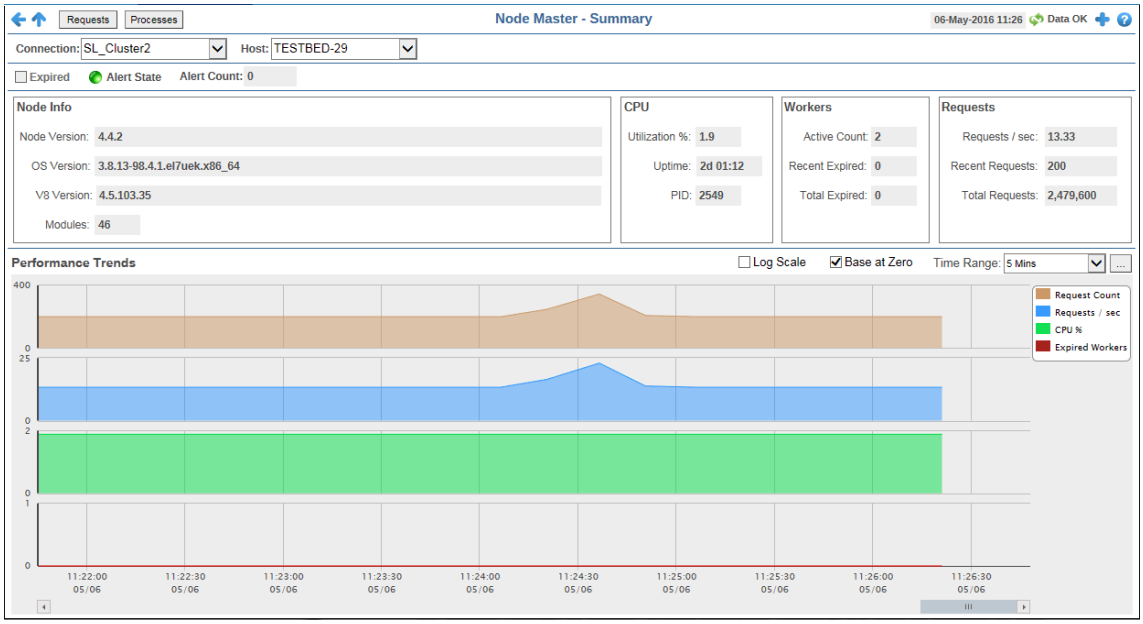
Requests 5 Min Rate	The average number of requests for the last 5 minutes.
Requests 15 min Rate	The average number of requests for the last 15 minutes.
Expired Workers	The number of expired workers on the host since the last data update.
Arch	The CPU architecture of the operating system on the server. Possible values are **x64**, **arm**, and **ia32**.
C-ares	The current version of C-ares running on the host.
Http Parser	The current version of the http parser running on the host.
ICU	The current version of ICU running on the host.
Modules	This number of modules found on the host.
Node Ver	The version of **node.js** running on the host.
Open SSL	The current version of OpenSSL running on the host.
Platform	The operating system's platform. Possible values, among others, are: **darwin**, **linux**, **sunos**, or **win32**.
Release	The operating system's release number.
Type	The name of the operating system. Possible values, among others, are **Linux** on Linux, **Darwin** on OS X, and **Windows_NT** on Windows.
UV	The current version of **uv** running on the host.
V8	The current version of **v8** running on the host.
ZLib	The current version of **ZLib** running on the host.

Expired	When checked, performance data about the node has not been received within the time specified (in seconds) in the **$nodeRowExpirationTime** field in the **conf\rtvapm_nodemon.properties** file. The **$nodeRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the message router. To view/edit the current values, modify the following lines in the **.properties** file:
	`# Metrics data are considered expired after this number of seconds`
	`#`
	`collector.sl.rtview.sub=$nodeRowExpirationTime:45`
	`collector.sl.rtview.sub=$nodeRowExpirationTimeForDelete:3600`
	
	In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Time Stamp	The date and time the row data was last updated.

Node Master Summary

This display allows you to view current CPU, worker, and request data as well as trending data for the number of requests, the number of requests per second, the percentage of CPU being used, and the number of recently expired workers on a particular host.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, the Data Server is not receiving data, or the Display Server is not receiving data from the Data Server). Green indicates the data source is connected.

Open the **Alert Views - RTView Alerts Table** display.

Open an instance of this display in a new window.

Open the online help page for this display.

Note: The **Requests** button takes you to "Node Requests Table". The **Processes** button takes you to "All Processes Table".

Filter By:

Connection	Choose the connection for which you want to show data in the display.
Host	Choose the host for which you want to show data in the display.

Fields and Data:

Expired When checked, performance data about the node has not been received within the time specified (in seconds) in the **$nodeRowExpirationTime** field in the **conf\rtvapm_nodemon.properties** file. The **$nodeRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the message router. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number of seconds
#
collector.sl.rtview.sub=$nodeRowExpirationTime:45
collector.sl.rtview.sub=$nodeRowExpirationTimeForDelete:3600
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Alert State The current alert severity.

- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

Node Info

Node Version	The version of **node.js** running on the host.
OS Version	The operating system's version number.
V8 Version	The current version of **v8** running on the host.
Modules	This number of modules found on the host.

CPU

Utilization %	The percentage of memory used on the CPU.
Uptime	The amount of time the process has been running.
PID	The process id for the node instance.

Workers

Active Count	The current number of active workers on the host.
Recent Expired	The number of expired workers on the host since the last data update.
Total Expired	The total number of expired workers on the host.

Requests

Requests / sec	The average number of requests per second on the host.
Recent Requests	The total number of requests since the last data update.
Total Requests	The total number of requests on the host.

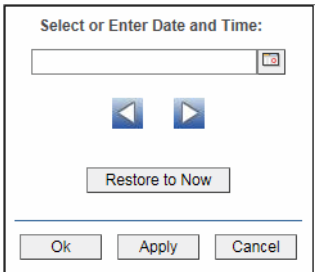
Performance Trends Graph Traces the following:

- **Request Count** -- traces the number of requests on the host.
- **Requests / sec** -- traces the number of requests/sec on the host.
- **CPU %** -- traces the percentage of CPU being used on the host.
- **Expired Workers** -- traces the number of expired workers on the host.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Node Request Views

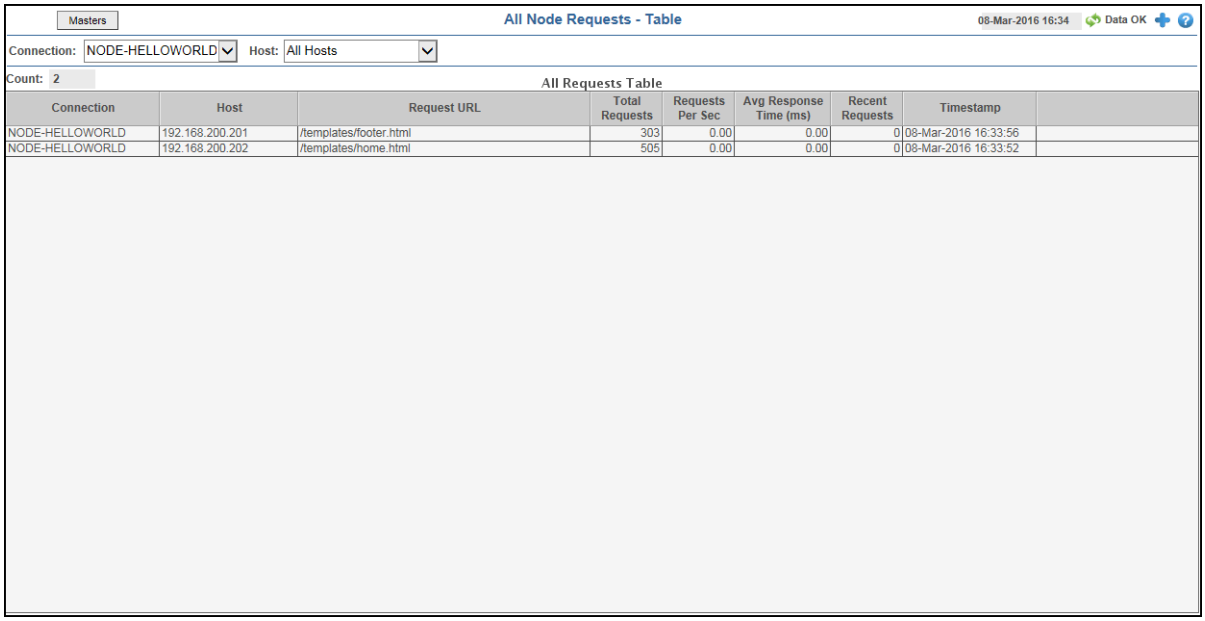
You can view data pertaining to requests for a connection and host, or view trending request data for a particular URL associated with a connection and a host. Displays in this View are:

- "Node Requests Table" on page 35: A tabular view of request data for one or all hosts on a particular connection.
- "Node Request Summary" on page 37: Allows you to view trending data (number of requests, number of requests per second, and average response time) for individual URLs by connection and host.

Node Requests Table

This display allows you to view request data for one or all hosts on a particular connection. You can view the request URL, total number of requests, number of requests per second, the average response time, and the number of recent requests for each host.

Drill-down and investigate by clicking a row to view details for the selected host in the "Node Request Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, the Data Server is not receiving data, or the Display Server is not receiving data from the Data Server). Green indicates the data source is connected.

Open the **Alert Views - RTView Alerts Table** display.

Open an instance of this display in a new window.

Open the online help page for this display.

Note: The **Masters** button takes you to "Node Master Table".

Filter By:
The display might include these filtering options:

Connection	Select the connection for which you want to view data.
Host	Select the host for which you want to view data.

Fields and Data:

Count:	The total number of nodes (rows) in the table.

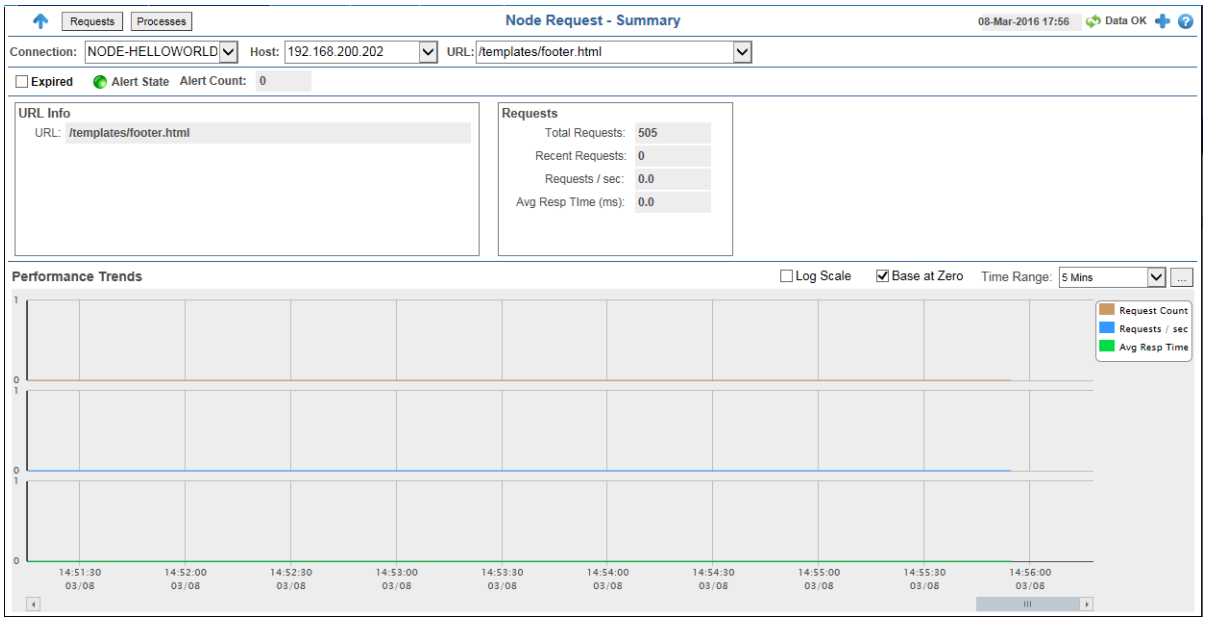
Table:
Column values describe the node and its associated requests.

Connection	The name of the connection
Host	The name of the host.

Request URL	The URL from which the requests originated.
Total Requests	The total number of requests.
Requests Per Sec	The average number of requests per second.
Avg Response Time	The average response time since the last data update.
Recent Requests	The total number of requests since the last data update.
Time Stamp	The date and time the row data was last updated.

Node Request Summary

This display allows you to view trending data (number of requests, number of requests per second, and average response time) for individual URLs by connection and host.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, the Data Server is not receiving data, or the Display Server is not receiving data from the Data Server). Green indicates the data source is connected.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this display.

Note: The **Requests** button takes you to "Node Requests Table". The **Processes** button takes you to "All Processes Table".

Filter By:

Connection Select the connection for which you want to show data in the display.

Host Select the host for which you want to show data in the display.

URL Select the URL for which you want to view data.

Fields and Data:

Expired When checked, performance data about the node has not been received within the time specified (in seconds) in the **$nodeRowExpirationTime** field in the **conf\rtvapm_nodemon.properties** file. The **$nodeRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the message router. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number of seconds
#
collector.sl.rtview.sub=$nodeRowExpirationTime:45
collector.sl.rtview.sub=$nodeRowExpirationTimeForDelete:3600
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Alert State The current alert severity.
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

URL Info

URL The URL from which the requests originated.

Requests

Total Requests The total number of requests.

Recent Requests	The total number of requests since the last data update.
Requests / sec	The average number of requests per second.
Avg Resp Time	The average response time since the last data update.

Performance Trends Graph

Traces the following:

Request Count -- traces the total number of requests.

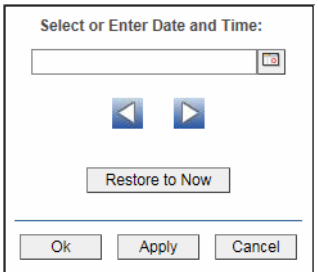
Requests / sec -- traces the average number of requests per second.

Avg Resp Time-- traces the average response time.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Process Views

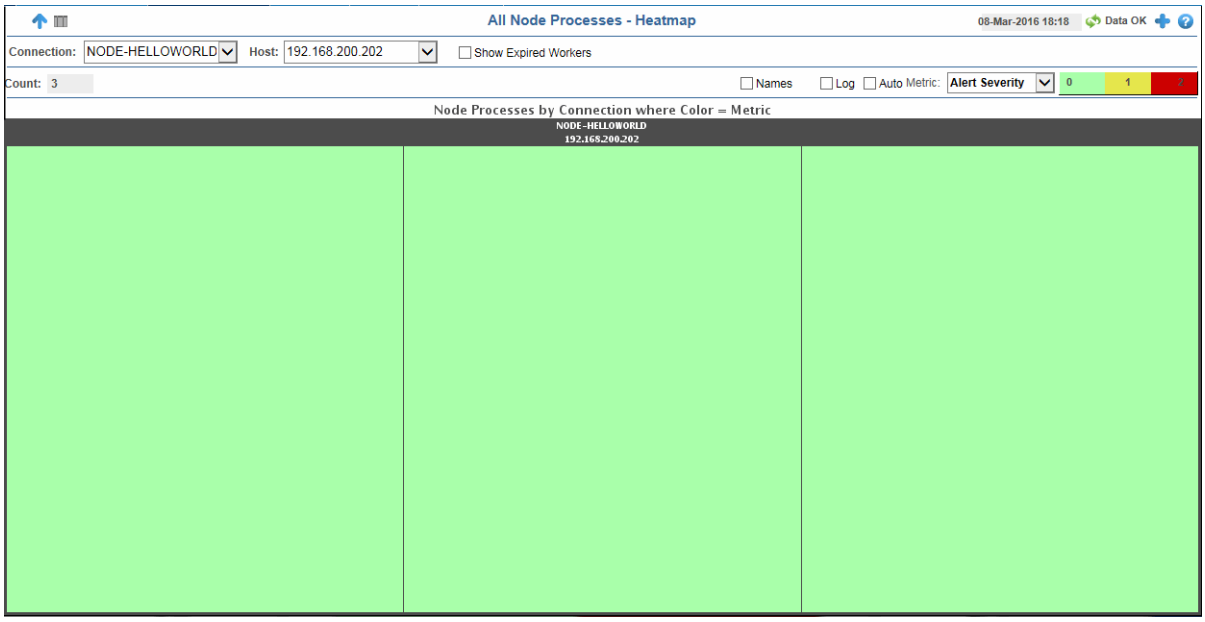
These displays allow you to view the current and historical metrics for all node processes in a heatmap or tabular format for one or all hosts, or view the current and historical metrics for a single node process. Displays in this View are:

- "All Processes Heatmap" on page 40: A color-coded heatmap view of data for all node processes for a particular connection/host combination.
- "All Processes Table" on page 42: A tabular view of data for all node processes for a particular connection/host combination.
- "Process Summary" on page 44: This display allows you to view current and trending data for a single node process for a particular connection/host combination.

All Processes Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your node processes for each available metric. You can view the node processes in the heatmap based on the following metrics: the current alert severity, the current alert count, the percentage of CPU used, and the percentage of memory used. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Names** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a node process. Clicking one of the rectangles in the heatmap opens the "Process Summary" display, which allows you to see additional details for the selected node process.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, the Data Server is not receiving data, or the Display Server is not receiving data from the Data Server). Green indicates the data source is connected.

Open the **Alert Views - RTView Alerts Table** display.

Open an instance of this display in a new window.

Open the online help page for this display.

Fields and Data:

Connection Select the connection for which you want to show data in the display.

Host Select the host for which you want to show data in the display.

Show Expired Workers Select this check box to view expired workers in the heatmap.

Count Lists the total number of processes (rows) found using the search parameters.

Names Select this check box to display the names of the processes at the top of each rectangle in the heatmap.

Log Select to this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics auto-scale automatically, even when **Auto** is not selected.

Metric Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning unacknowledged alerts in the instance. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

CPU Used % The percentage of CPU used. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **NodeProcessCpuUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

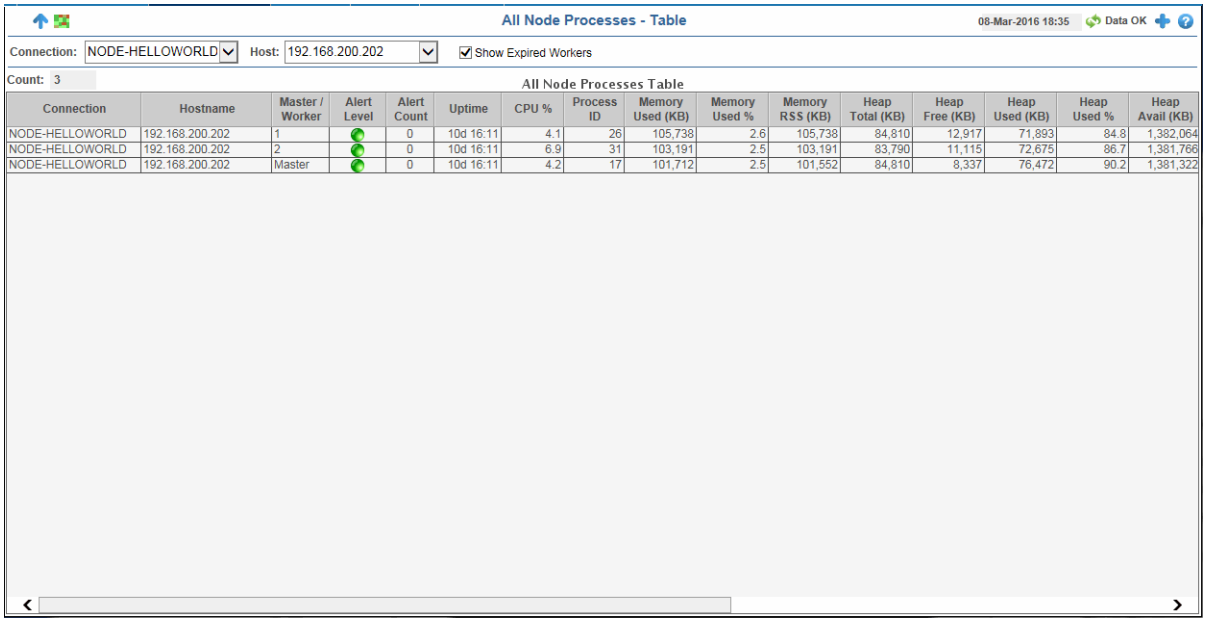
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Memory Used % The total percentage of memory used.The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **NodeProcessMemUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Processes Table

This display allows you to view memory, heap memory, and latency data for all processes in a table format. You can drill-down and view the details in the "Process Summary" display for a specific process by clicking on a row in the resulting table.



Connection	Hostname	Master / Worker	Alert Level	Alert Count	Uptime	CPU %	Process ID	Memory Used (KB)	Memory Used %	Memory RSS (KB)	Heap Total (KB)	Heap Free (KB)	Heap Used (KB)	Heap Used %	Heap Avail (KB)
NODE-HELLOWORLD	192.168.200.202	1		0	10d 16:11	4.1	26	105,738	2.6	105,738	84,810	12,917	71,893	84.8	1,382,064
NODE-HELLOWORLD	192.168.200.202	2		0	10d 16:11	6.9	31	103,191	2.5	103,191	83,790	11,115	72,675	86.7	1,381,766
NODE-HELLOWORLD	192.168.200.202	Master		0	10d 16:11	4.2	17	101,712	2.5	101,552	84,810	8,337	76,472	90.2	1,381,322

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, the Data Server is not receiving data, or the Display Server is not receiving data from the Data Server). Green indicates the data source is connected.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this display.

Filter By:
The display includes these filtering options:

Connection	Select the connection for which you want to show data in the display.
Host	Select the host for which you want to show data in the display.
Show Expired Workers	Select this check box to view expired workers in the table.
Count	Lists the total number of processes (rows) found using the search parameters.

Fields and Data:

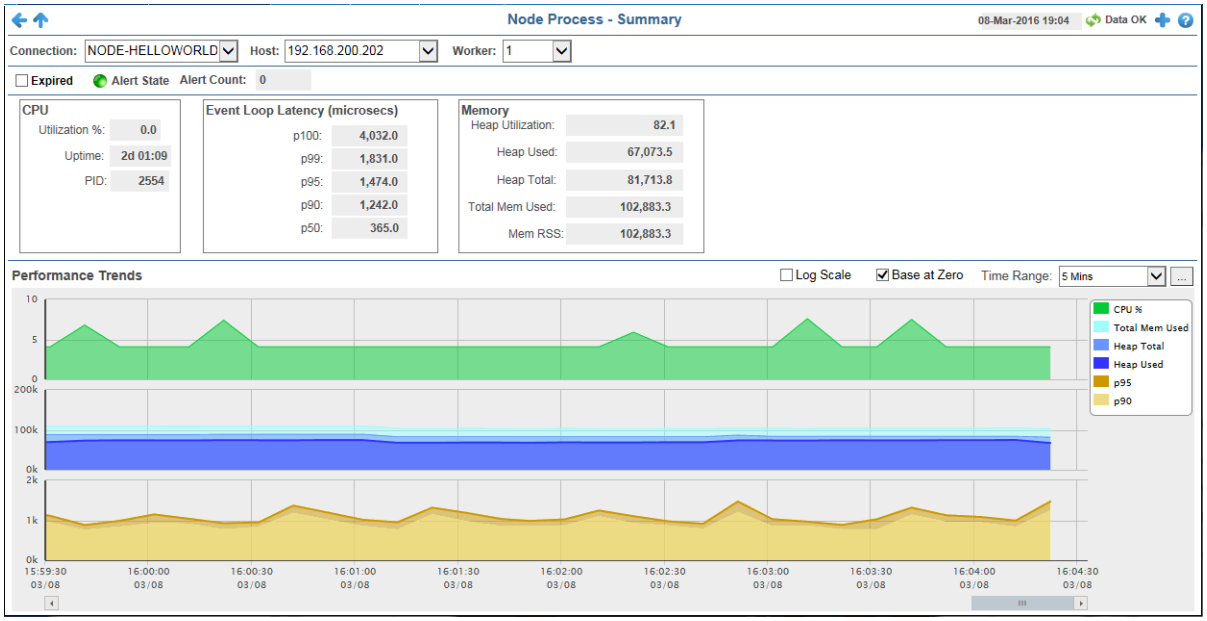
Connection	The name of the connection.
Hostname	The name of the host.
Master / Worker	Displays whether the process is the Master process or, if the application is clustered, the worker ID.
Alert Level	The current alert status. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	Total number of alerts for the process.
Uptime	Lists the amount of time the process has been up and running.
CPU %	A decimal percentage describing how much the process utilizes the CPU.
Process ID	The process ID.
Memory Used (KB)	The used memory as a fraction of total system memory, in kilobytes.
Memory Used %	The percentage of total available memory used.
Memory RSS (KB)	The Resident Set Size, which is the portion of memory held in RAM (as opposed to swap or disk), in kilobytes.
Heap Total (KB)	The total amount of heap memory from which newly created objects will originate, in kilobytes.
Heap Free (KB)	The amount of memory remaining from which newly created objects will originate, in kilobytes.

Heap Used (KB)	The heap memory currently in use, in kilobytes.
Heap Used %	The percentage of heap memory currently being used.
Heap Avail (KB)	The v8 engine's **total_available_size** value, in kilobytes.
Heap Limit (KB)	The v8 engine's **heap_size_limit** value, in kilobytes.
Heap Total Executable (KB)	The v8 engine's **total_heap_size_executable** value, in kilobytes.
Latency p100	The number of microseconds that 100 percent of events were late in the previous 4 seconds.
Latency p99	The number of microseconds that 99 percent of events were late in the previous 4 seconds.
Latency p95	The number of microseconds that 95 percent of events were late in the previous 4 seconds.
Latency p90	The number of microseconds that 90 percent of events were late in the previous 4 seconds.
Latency p50	The number of microseconds that 50 percent of events were late in the previous 4 seconds.
Lag	The average number of milliseconds a request has to wait in the Node's event queue before being processed. An excess lag means that the process is overloaded.
time_stamp	The date and time the row data was last updated.

Expired	When checked, performance data about the client has not been received within the time specified (in seconds) in the **$nodeRowExpirationTime** field in the **conf\rtvapm_nodemon.properties** file. The **$nodeRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the client. To view/edit the current values, modify the following lines in the **.properties** file:
	`# Metrics data are considered expired after this number of seconds`
	`#`
	`collector.sl.rtview.sub=$nodeRowExpirationTime:45`
	`collector.sl.rtview.sub=$nodeRowExpirationTimeForDelete:3600`
	
	In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Process Summary

This display provides a view of the current and historical metrics for a single process. You can view the current information pertaining to a particular URL and various request data for the node process in the upper portion of the display. The trend graph in the bottom half of the display contains the current and historical number of requests, the number of requests per second, and the average response time for the node process.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, the Data Server is not receiving data, or the Display Server is not receiving data from the Data Server). Green indicates the data source is connected.

Open the **Alert Views - RTView Alerts Table** display.

Open an instance of this display in a new window.

Open the online help page for this display.

Filter By:
The display might include these filtering options:

Connection	Select the connection for which you want to show data in the display.
Host	Select the host for which you want to show data in the display.
Worker	Select the name of the worker to view. You can select from **Master** or any of the worker processes created by the Master. Worker processes are defined by numbers: **1** for the first worker process created by the **Master**, **2** for the second worker process created by the **Master**, and so on.

Expired When checked, performance data about the client has not been received within the time specified (in seconds) in the **$nodeRowExpirationTime** field in the **conf\rtvapm_nodemon.properties** file. The **$nodeRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the client. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number of seconds
#
collector.sl.rtview.sub=$nodeRowExpirationTime:45
collector.sl.rtview.sub=$nodeRowExpirationTimeForDelete:3600
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Alert State The current alert state of the process.

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count Lists the total number of alerts for the process.

CPU

Utilization %	A decimal percentage describing how much the process utilizes the CPU.
Uptime	Lists the amount of time the process has been up and running.
PID	The process ID.

Event Loop Latency (microsecs)

p100	The number of microseconds that 100 percent of events were late in the previous 4 seconds.
p99	The number of microseconds that 99 percent of events were late in the previous 4 seconds.
p95	The number of microseconds that 95 percent of events were late in the previous 4 seconds.
p90	The number of microseconds that 90 percent of events were late in the previous 4 seconds.
p50	The number of microseconds that 50 percent of events were late in the previous 4 seconds.

Memory

Heap Utilization	The decimal percentage of utilized heap space.
Heap Used	The heap memory currently in use, in kilobytes.
Heap Total	The total amount of memory from which newly created objects can originate, in kilobytes.
Total Mem Used	The used memory as a fraction of total system memory, in kilobytes.
Mem RSS	Resident Set Size, which is the portion of memory held in RAM (as opposed to swap or disk), in kilobytes.

Performance Trends Graph

Traces the following:

CPU % -- traces the CPU utilization percentage.

Total Mem Used -- traces the amount of memory used.

Heap Total -- traces the total amount of available heap memory.

Heap Used -- traces the amount of used heap memory.

p95 -- traces the number of microseconds that 95 percent of events were late in the previous 4 seconds.

p90 -- traces number of microseconds that 90 percent of events were late in the previous 4 seconds.

Log Scale

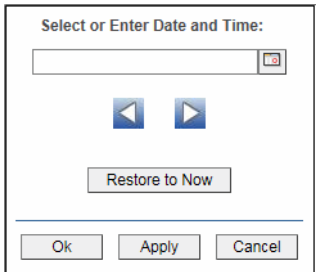
Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero

Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

APPENDIX A Alert Definitions

This section describes alerts for Node.js and their default settings.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
NodeMasterCpuUsageHigh A master node's CPU usage is above the defined thresholds. **Index Type(s)**: PerConnection **Metric**: Node Master - CPU %	30	50	30	FALSE
NodeMasterExpired A master node has expired. **Index Type(s)**: PerConnection **Metric**: Node Master - Expired	NaN	NaN	30	FALSE
NodeMasterRequestRateHigh The request rate of a master node is above the defined thresholds. **Index Type(s)**: PerConnection **Metric**: Node Requests - Requests Per Second	1600	2000	30	FALSE
NodeMasterResponseTimeHigh The response time of a URL is above the defined thresholds. **Index Type(s)**: PerConnection **Metric**: Node Requests - Avg Response Time	5	10	30	FALSE
NodeProcessCpuUsageHigh A worker node's CPU usage is above the defined thresholds. **Index Type(s)**: PerConnection **Metric**: Node Processes - CPU Used %	5	50	30	TRUE
NodeProcessExpired A worker node has expired. **Index Type(s)**: PerConnection **Metric**: Node Processes - Expired	NaN	NaN	30	FALSE
NodeProcessMemUsageHigh A master node's memory usage has exceeded the defined limits. **Index Type(s)**: PerConnection **Metric**: Node Processes - Memory Used %	90	95	30	TRUE

APPENDIX B Third Party Notice Requirements

** Apache Tomcat is delivered for convenience only as a separate application and is licensed under the Apache License Version 2.0

** JEval 0.9.4 is licensed under the Apache License Version 2.0

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

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"Work" shall mean the work ofauthorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in orattached to the work (an example is provided in the Appendixbelow)

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